 0030-0950/78/0005-0282$1.00/0

BRIEF NOTE

IMMIGRATION BY WHITE-FOOTED MICE (*PEROMYSCUS LEUCOPUS*): ABSENCE OF FEMALES[1]

STEPHEN H. VESSEY and LEE E. MITCHELL, Department of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403

OHIO J. SCI. 78(5): 282, 1978

Immigration into an area following artificial depletion occurs rapidly in *Peromyscus*, but little information on the sex of invading animals is available (Blair 1940, Stickel 1946). Males move further than females and have larger home ranges (Stickel 1968). Also, sex ratios in natural populations slightly favor males in *P. leucopus* (55%) (Terman and Sassaman 1967). For these reasons one would expect a larger number of males to appear on a trapped-out grid. However, in other Cricetids, such as *Microtus*, young females disperse more frequently than males (Krebs *et al* 1973). The purpose of our study was to determine the sex of invading animals after removal trapping in a 1.36 ha grid.

A 54-point grid (9 x 6) was established along the floodplain of the N. Branch of the Portage River, 6.4 km east of Bowling Green, Wood County, OH. Overstory vegetation was predominantly sugar maple (*Acer saccharum*), slippery elm (*Ulmus rubra*), white ash (*Fraxinus americana*) and basswood (*Tilia americana*). Sherman traps, 15 m apart, were baited with peanut butter and checked each morning. Starting on 28 September 1976, trapped mice were ear-tagged, weighed, sexed, checked for reproductive condition, and released at the site of capture for 5 consecutive days. From 3–7 October all mice captured were removed. Marking and releasing was resumed on 8 October for 18 consecutive days.

Forty-six mice were taken, during removal trapping, from a population estimated at 68 (Jolly method). Populations this high have previously been reported in northwestern Ohio (Rintamaa *et al* 1976). During the subsequent 18 days of marking and releasing, 59 different mice were trapped, of which 9 (3 females and 6 males) had been marked and released during the pre-removal period. The remaining 50 mice, newly caught, were all males. These males were significantly lighter than males caught during the first 5 days (15.6 g ± 0.6 vs. 19.0 g ± 0.7 SEM; $p < .01$). Only 28% of these newly caught males were adults, based on the presence of brown pelage (Gottschang 1956). The 50 males were recaptured an average of 3 times each during the 18 days, suggesting that they were immigrants rather than transients. By the end of the 18 day repopulation assessment, the population was estimated at 48 (i.e., 70% of the original population density).

Although slightly more males than females were expected to immigrate into the artificially depleted area, the absence of females is puzzling. Fall-born white-footed mice are thought to overwinter with parents and disperse to breed in the spring (Nicholson 1941). Our results suggest that young males are capable of dispersing in the fall and establishing home ranges, perhaps to be joined by females for spring breeding. Such a response might be adaptive if females are a limited resource for which males compete (Emlen and Oring 1977), as is suggested by a male-female sex ratio in favor of males for this genus.

[1]Note received September 12, 1977 and in revised form January 12, 1978 (#77-69).

LITERATURE CITED

Blair, W. F. 1940 A study of prairie deer-mouse populations in southern Michigan. Amer. Midl. Natur. 24: 273–305.

Emlen, S. T. and L. W. Oring 1977 Ecology, sexual selection, and the evolution of mating systems. Science 197: 215–223.

Gottschang, J. L. 1956 Juvenile molt in *Peromycus leucopus noveboracensis*. J. Mammal. 37: 516–520.

Krebs, C. J., M. S. Gaines, B. L. Keller, J. H. Myers and R. H. Tamarin 1973 Population cycles in small rodents. Science 179: 34–41.

Nicholson, A. J. 1941 The homes and social habits of the wood-mouse (*Peromyscus leucopus noveboracensis*) in southern Michigan. Amer. Midl. Natur. 25: 196–223.

Rintamaa, D. L., P. A. Mazur and S. H. Vessey 1976 Reproduction during two annual cycles in a population of *Peromyscus leucopus noveboracensis*. J. Mammal. 57: 593–595.

Stickel, L. F. 1946 The source of animals moving into a depopulated area. J. Mammal. 27: 301–307.

——— 1968 Home range and travels. *In:* John A. King (ed.) Biology of *Peromyscus* (Rodentia), Special Publication No. 2, Amer. Soc. Mammal., 593 pp.

Terman, C. R. and J. F. Sassaman 1967 Sex ratio in deer mouse populations. J. Mammal. 48: 589–597.